are therefore advised to make their hotel or lodging arrangements without delay. The local executive committee is doing everything in its power to help them in this direction, and inquiries addressed to the Local Secretaries, Municipal Buildings, Bournemouth, will bring prompt and full information on the subject.

NOTES.

THE visit of the King and Queen to the British Scientific Products Exhibition at the Central Hall, Westminster, on Tuesday, is a mark of Royal approval which will be highly appreciated, not only by the British Science Guild, which is responsible for the enterprise, but also by all who are working for the advancement of science and the extension of its industrial applications. Their Majesties, who were accompanied by Princess Mary and Prince Henry, were received by the Marquess of Crewe, president of the exhibition, and several members of the organising committee. They remained in the exhibition for about an hour and a half, and took the keenest interest in numerous machines, instruments, and products displayed, particularly in the exhibits of optical and laboratory glass and instruments, dyes and fine chemicals, radium, high-speed telegraphic printing, magnetos, Hadfield steels, potash salts from blast-furnace dust, seed-testing, and fruit and vegetable preserving. Both the King and Queen expressed much satisfaction that so many objects in the exhibition represented things formerly obtained chiefly or entirely from abroad, and congratulated the organisers of the exhibition upon the educational and practical value of this display of British productions. Their visit was a most encouraging sign of Royal concern for national activities which receive little official or public attention, though they are of prime importance; and it will doubtless induce many people to see for themselves what is really a stimulating display of scientific and industrial achievement.

A FUND is being raised in the medical profession to present Sir Clifford Allbutt with his portrait. Sir Clifford Allbutt has been, above all things, a great clinical teacher, first in Leeds and, after his appointment to be Regius professor of physic in 1892, in Cambridge. He was one of the first to show the value of the ophthalmoscope in the diagnosis of diseases of the nervous system, the kidney, and certain other general disorders; his volume on this subject was published in 1871. During the years 1896–99 he edited a great "System of Medicine," which had a success so immediate that a second edition was almost at once demanded. In the preparation of this, which appeared at intervals from 1905 to 1910, he was associated with Sir Humphry Rolleston. Sir Clifford Allbutt was elected president of the British Medical Association in July, 1914, and has retained that position throughout the war. The council of the British Medical Association, therefore, has taken the lead in asking for subscriptions to the fund to present Sir Clifford Allbutt with his portrait, to be painted by an eminent artist. From the portrait it is intended to commission a mezzotint engraving, which subscribers to the fund will be able to purchase for their own collections. Subscriptions, which are limited to one guinea, should be made payable to the "Sir Clifford Allbutt Presentation Fund," crossed London County, Westminster, and Parr's Bank, and addressed to the Treasurer of the British Medical Association, 429 Strand, London, W.C.2. A large number of subscriptions have already been received, and it is proposed to close the fund at the end of this month.

THE council of the British Association recently instructed a deputation, consisting of Prof. Arthur Keith, Sir Edward Brabrook, and Prof. A. W. Kirkaldy, to wait upon the Ministry of Pensions in order to urge the utilisation of anthropometric and kindred data collected by the disbanded Ministry of National Service. The deputation was received on behalf of the Minister of Pensions by Col. Arthur L. A. Webb, Director-General of Medical Services, Ministry of Pensions, who explained that the medical statistical department of the Ministry of National Service, of which Dr. H. W. Kaye was in charge, and the data collected by that department, had been taken over by the Ministry of Pensions. Under the Ministry of Pensions Dr. Kaye had not only to direct the compilation of medical recruiting statistics, but also to organise a special branch to deal with medical data connected with the Ministry of Pensions. It was thus impossible for Dr. Kaye's department to give its undivided attention to the preparation of returns relating to the physique of recruits in the various areas and trades of the country. At the present time all the data relating to Grade IV. men were being examined and compiled. Col. Webb also explained that Dr. Kaye's department was endeavouring to obtain data for comparison from Canada, New Zealand, and the United States. The deputation, before withdrawing, thanked Col. Webb, and urged the early publication of results, which are now needed by all who are studying problems connected with the present physical condition of our population.

THE council of the Institution of Electrical Engineers has issued a pamphlet on the Electricity (Supply) Bill, 1919, now before a Committee of the House of Commons. It is pointed out that great injury to the national interest has resulted from ill-considered electrical legislation in the past, and naturally electricians are anxious about the future. The appointment of Electricity Commissioners is welcomed provided that these Commissioners give whole-time service and appoint an Advisory Council, membership of which is restricted to persons possessing expert qualifications. The proposal that the Commissioners undertake and promote research also is approved. There is opposition to the proposed terms for the purchase of generating stations. Parliament is urged not to break faith with those who have invested their capital on the strength of the powers conveyed by earlier legislation. Having regard to the fact that practically every industry in the country is concerned directly or indirectly with electricity supply, it is more fitting that the Electricity Commissioners should be responsible to Parliament through the President of the Board of Trade, and should not be under the Ministry of Ways and Communications. This point is strongly emphasised.

THE death is announced, at sixty-seven years of age, of Prof. Emil Fischer, professor of chemistry in the University of Berlin, foreign member of the Royal Society, and Nobel laureate in chemistry in 1902.

THE death is announced, in his seventy-fourth year, of Dr. Elwyn Waller, who from 1885 to 1893 was professor of analytical chemistry at the School of Mines, Columbia University. From 1872 to 1885 Dr. Waller was chemist to the New York Health Department. He was the author of several text-books on chemistry.

MRS. MENTEITH OGILVIE has presented to the Natural History Museum the fine collection of British bird-skins formed by her late husband, Dr. Menteith Ogilvie. It consists of nearly 1800 specimens, many of the species being represented by large series. The collection is in a very good condition, each bird being carefully identified and labelled, with full data. The birds of prey are particularly well represented. There are three examples of the hen harrier, a decreasing British species, and seven of Montagu's harrier, which is a somewhat rare spring and summer visitor. There is a very large series of the sparrowhawk, showing every change and phase of plumage from the nestling in its various stages to the adult bird. There are also good series of the great crested grebe from Norfolk and Suffolk, of the Slavonian grebe, and of the little auk, also from Norfolk and Suffolk.

DR. H. R. MILL has retired from the position of director of the British Rainfall Organisation and from the editorship of "British Rainfall" and *Symons's Meteorological Magazine,* which he has carried on since 1901. Serious impairment of eyesight consequent on overwork led Dr. Mill to make arrangements for retiring in 1914, when the outbreak of the war caused him to postpone the step; he now finds his health unequal to the strain of adapting the work to post-war conditions. The association of voluntary rainfall observers in all parts of the British Isles numbered 3500 nineteen years ago; it had reached 5500 in 1914, and, after falling to about 5100 during the war, the number is again increasing. The collection and publication of rainfall data will not be interrupted by the changes consequent on Dr. Mill's retirement.

THE sudden death on July 5 of Mr. John Hopkinson at his home in Watford is a sad loss to the pursuit of natural knowledge, both in Hertfordshire and in wider fields. It was so far back as 1875 that Mr. Hopkinson founded the Watford (now Hertfordshire) Natural History Society, and for more than forty years the promotion of its interests had been his chief concern. The eighteen volumes of Transactions are sufficient evidence of the success of his efforts; to them he contributed frequently on meteorological, phenological, and geological topics, and the whole series has had his meticulous editorial care; and his sturdy Yorkshire shoulders carried a good deal more than the local society. The admirable County Museum at St. Albans arose from his proposal, and he was the originator of the annual conference of delegates from provincial scientific societies held in connection with the British Association. For some fifteen years he had been secretary of the Ray Society, and always the helpful friend of naturalists of all kinds. Mr. Hopkinson was active to the last, and few men have made better use of seventy-four years.

BY the death of Dr. John Inglis on July 13 the Clyde loses one of its best known pioneers in scientific shipbuilding. An account of Dr. Inglis's career appears in *Engineering* for July 18, to which we are indebted for the following particulars. He was born in 1842, the eldest son of Anthony Inglis, who founded the firm of A. and J. Inglis in 1837. He was educated at the Glasgow Academy and at Glasgow University, where he came under the influence of the brothers Thomson, Lord Lister, Rankine, Blackburn, and others. He became manager of the shipbuilding yard at twenty-five years of age. He was amongst the first to adopt the principle of progressive-speed trials on the measured mile and of careful study of the results achieved. Dr. Inglis was associated with Dr. Froude's method of tank experiments with models of different forms and with comparative screw propellers. He was the first on the Clyde to carry out inclining experiments on completed vessels with the view of determining their stability and of assisting towards accurate loading. He was also a pioneer in the determination of longitudinal stresses, and conducted many experiments on a practical scale. He was vice-president of the Institution of Naval Architects, and president of the Institution of Engineers and Shipbuilders in Scotland in 1893, and of the Institute of Marine Engineers in 1898. Much of his private time was devoted to the advancement of the national organisations and institutions in Glasgow. In 1898 the honorary degree of LL.D. was conferred upon Dr. Inglis by the University of Glasgow.

As a result of the establishment of the Ministry of Health, the medical staffs of the Local Government Board and of the National Health Insurance Commission have been brought together to form the main portion of the medical staff of the Ministry, but on a newly organised system and with considerable additional posts. The Minister has appointed Sir George Newman as Chief Medical Officer of the Ministry, with status corresponding with that of a Secretary of the Ministry. By arrangement between the President of the Board of Education and the Minister, Sir George Newman is to retain his position as Chief Medical Officer of the Board of Education. Five new posts of Senior Medical Officer have been established, and to these the following appointments have been made:—Dr. G. S. Buchanan, Dr. Janet M. Campbell, Dr. F. J. H. Coutts, Mr. A. W. J. MacFadden, and Mr. J. Smith Whitaker. The whole of the rest of the established medical staff of the Ministry will be in one grade to be known as Medical Officers. The following appointments have so far been announced:—Miss Irene C. D. Eaton, Dr. Major Greenwood, Miss Florence B. Lambert, and Dr. Jane H. Turnbull. Besides this regular staff, arrangements have been made whereby the Ministry may secure the services, from time to time, of specialists and others on a part-time basis. Amongst these are included at present the following:—Dr. Maurice Craig, Col. L. W. Harrison, and Sir David Semple.

BY direction of the President of the United States, the U.S. Distinguished Service Medal has been awarded to Lt.-Col. S. J. M. Auld, Royal Berkshire Regiment, British Army, "for exceptionally meritorious and distinguished services rendered the United States Army while serving as Liaison Officer between the British and American Chemical Warfare Services." Col. Auld, who is professor of agricultural chemistry at University College, Reading, commanded the British Gas Warfare Mission to the United States, other well-known members of which included Major H. R. Le Sueur and Major H. W. Dudley. This Mission put before the Americans everything about gas warfare *ab initio,* and Col. Auld was responsible for organising the American Chemical Warfare Service, which developed into the largest gas service of all the combatant armies. When the armistice was signed the United States were manufacturing nearly twice as much gas as all the other combatant nations (including Germany) put together. The American respirator was an improved copy of the British box respirator. The field training was also based on British experience. The exchange of manufacturing, design, and research experience between the two nations was absolutely complete, the relationship between the two Chemical Warfare Services being closer than in any other branch of the Service, and doing much to consolidate the cordial understanding already existing between the chemists of the two countries.

Mr. R. A. Smith describes in the issue of *Man* for July a discovery of flint implements from Victoria West, in the heart of the Great Karroo, South Africa. Among them are examples of what are known as "tortoise-cores," best known in Europe from Northfleet, in Kent, and from Montières, near Amiens, and dating from the period of Le Moustier, to which they are probably confined. The core was prepared with the object of getting an ovate flake-implement from the upper face by a final blow on the faceted bulb. This, if successful, was a special case of the Levallois flake. Those from Victoria West are rather pointed at one end, and generally struck from the left edge near the point; in a few cases the detaching blow was struck on the right of the point.

In a paper entitled "Customs Connected with Death and Burial among the Roumanians," published in the June issue of *Folk-lore,* Mrs. A. Murgoci has collected much interesting information less known than it deserves to be in western Europe. The accounts of the death feasts are curious, still more the custom of disinterring the dead seven years after burial; when a death feast is given for the last time, the bones are washed in wine, put in a smaller coffin, and reburied. At present the priests are overburdened with work, for not only have they an unusually large number of deaths to deal with, but they are now beginning to be occupied in digging up those who died before the war. On the Monday after Easter Monday women put the red shells of the Easter eggs into water in the hope that they may be thus conveyed to the Blajini, the good men who live in some other world and are ignorant of what passes in this. When they see the egg-shells floating within their view, they know that Easter has come, and they, too, rejoice.

The South London Entomological and Natural History Society takes a high place among associations of the kind for the thoroughness of its work and for the excellence of its published Proceedings. The activities of the society are chiefly entomological, and the contributions of many of its members to our knowledge of the morphology and ontogeny of native insects are of great value. The last published volume of Proceedings contains a well-written summary of recent work in economic entomology, both British and foreign, delivered as his annual address by the president, Mr. Stanley Edwards. A careful analysis of variation in the wing-markings of *Epinephele tithonus*, compared with other species of Satyrid butterflies, and illustrated by two excellent photographic plates, is contributed by Mr. G. Wheeler. Other elaborate studies of variation in Lepidoptera are furnished by Mr. H. J. Turner and Mr. A. Sich. The reports of meetings, with notes of discussions and the exhibition of specimens, are adequately given, and accounts are included of various excursions and visits, including one to the John Innes Horticultural Institute at Merton, and another to Wimbledon Common, where the natural features of the site appear to have suffered less interference of late years than might have been expected. There is a brief notice of a lecture by Prof. A. Dendy on sponges, and an abstract of a lecture by Miss G. Lister on the Mycetozoa. Altogether there is reason to congratulate the members on the healthy condition of their society, and we should not omit to mention that a full index much enhances the value of the present volume.

The Bulletin of the Imperial Institute, vol. xvii., No. 1, for this year contains an important article on the cocoa production of the Empire. The quantity of cocoa produced in British countries in 1913 was more than three times the amount consumed in the United Kingdom, yet this country obtained only about one-half of its supply from these sources. Large quantities of prepared cocoa and chocolate were also being imported from foreign countries which had been manufactured there from British-grown cocoa. During the war the position improved, and about 86 per cent. of the total imports came from British possessions in 1917. The money value of the imports in 1916 was 6¾ million pounds sterling, so that the importance of the matter can readily be realised. Two points are worthy of special mention: first, the remarkable growth of the cocoa industry on the Gold Coast, which colony started to export cocoa in 1891; and, secondly, the enormous increase in the consumption of cocoa in the United States in recent years. The consumption has trebled since 1913, and about one-half of the total quantity produced in the world now goes to the States.

The possibility of growing New Zealand flax (*Phormium tenax*) on a commercial scale in the British Isles has for many years been under consideration, and the publication of an important paper on the subject in *Kew Bulletin*, No. 4, is of considerable interest. From the account there given it is clear that in south-west Ireland, south-west Scotland, and possibly in the south of England, the successful cultivation of New Zealand flax is a definite possibility. The article, which mainly consists of an account of Lord Ventry's successful experiments in co. Kerry, is illustrated by several photographs of New Zealand flax under cultivation in Ireland showing a remarkably vigorous growth. The fibre of this Irish-grown flax has been tested at Belfast, and has been found almost as good as "Good-fair" imported fibre from New Zealand, which was valued in July, 1914, at 32*l.* per ton. As paper-making material, the leaves have also been very well reported on by the Irish Paper Mills Co. near Dublin. The great value of New Zealand flax, however, is its fibre, which is used for making binder twine and high-grade string and cord. As the demand for this is a very heavy and rising one, the possibility of growing New Zealand flax for the purpose in the British Isles is of considerable importance. It is pointed out in the article that only certain parts of the United Kingdom are suitable for the growth of New Zealand flax as a commercial undertaking, but as the results so far obtained are promising, it is to be hoped that every encouragement will be given to the enterprise, which promises to yield a sound financial return to the impoverished farmers in the south-west of Ireland in particular.

The U.S. Bureau of Standards Technologic Paper No. 128 (copies of which may be obtained on application to the Bureau) deals with the effect of solar radiation upon balloons from the thermal point of view. After discussing the characteristics of radiation from the sun and the effects of its absorption by balloon fabric, the authors give the results of reflection and transmission measurements on nineteen different samples with Coblentz's apparatus, using light from the sun and from a nitrogen-filled tungsten lamp with copper chloride filter. With a model airship 12 ft. × 3 ft. the temperatures of the fabric and of the contained gas were determined in sunlight; the temperature-rise of the upper fabric was found to be proportional to the cosine of the angle between the sun's rays and the normal to the surface; the minimum temperature occurred just below the shadow line, and not at the bottom. In the lower half of the balloon the temperature of the gas was uniform, although there was a difference of 25° C. between this and the gas temperature at the top. It is calculated that in still air as much as 80 per cent. of the total heat loss from the upper surface of the model might be due to radiation from the fabric. For obtaining the minimum heating effect on an airship in sunlight the use of aluminium-coated fabric is recommended, since this also affords good protection against actinic light.

IN view of the successful round voyage of the naval airship R 34, great interest is attached to a fully illustrated account of this vessel which appears in *Engineering* for July 18. The vessel has a length of 645 ft. over all, and a maximum diameter of 78 ft. 9 in. Its gas capacity is about 2,000,000 cub. ft., giving a gross lift of 60 tons under standard conditions. The disposable lift is just under 30 tons. The hull is of fine stream-line form, and is constructed of main transverse frames spaced 10 metres apart, and built in the form of a polygon with thirteen sides. The frames are joined at each angle of the polygon by longitudinal girders, and there are intermediate frames in each space, both transversely and longitudinally. The exterior polygon of twenty-six sides thus formed has the outer cover stretched over it. The girders are constructed of duralumin. There are eighteen gas-bags, composed of high quality single-ply cotton fabric, lined with rubber on the inner surface. On this surface goldbeaters' skins are stretched and secured with rubber solution, and the whole is then varnished over. Each gas-bag has an automatic relief valve. There are five cars, one for navigational purposes, and all the others contain engines. The five engines are of 270 h.p. each, and give a speed of 55 knots in still air. The photographic illustrations of the ship under construction and in flight are particularly interesting, and give very clear views of the details of construction.

MESSRS. HODDER AND STOUGHTON have in the press the New Teaching Series, which has been arranged to meet new demands in education as to method and curriculum. The subjects of the volumes in hand include:—Chemistry from the Industrial Viewpoint, Applied Botany, Industrial Geology, Geography of Commerce and Industry, Chemistry and Bacteriology of Agriculture, Everyday Mathematics, Mathematics of Engineering, Foundations of Engineering, Mathematics of Business and Commerce, and Industrial History.

MESSRS. H. K. LEWIS AND CO., LTD., have removed their publishing, wholesale, and advertisement departments to 28 Gower Place, W.C.1. The change not only provides larger and more convenient accommodation for publishing work, but the space vacated in the old premises affords much needed additional room for the library and bookselling business. A new and convenient reading-room is to be added to the library over the present library room.

MESSRS. LONGMANS ask us to say, in correction of an announcement in last week's NATURE, that though the edition on large paper of "A Naturalist's Sketch Book," by A. Thorburn, which they will publish in the autumn, will be limited to 105 copies, the ordinary edition of the book will not be limited in number.

THE offices of the Imperial Mineral Resources Bureau have been moved from 14 Great Smith Street to 2 Queen Anne's Gate Buildings, Westminster, S.W.1.

OUR ASTRONOMICAL COLUMN.

A BRIGHT METEOR.—A large meteor with unusually slow motion was observed at Bristol on July 20, 11.2 G.M.T.; it had a double nucleus, and passed over 42° of the sky in 12 seconds. The observed path was from 37°+47° to 4°+15½°. The meteor was of a red colour, like Mars, and probably from a radiant in Leo at about 155°+25°. It is curious that the great fireball seen in America on July 20, 1860, had a radiant point in the same region of the sky, and may be assumed to have been derived from the same cometary system. Further observations of the meteor of July 20 last would be valuable, and Mr. W. F. Denning, 44 Egerton Road, Bristol, will be glad to receive any.

THE LIGHT OF THE AURORA AND THE AURORAL LINE.—Observation of the brightness of the background of the sky by various observers has shown that it must be due to some other cause than the diffused light of the stars themselves, and the suggestion has been made that this is the effect of the existence of a permanent aurora. In the *Astrophysical Journal* for May Prof. Slipher publishes an account of some spectrographic observations which have a direct bearing on the point. He says that during three and a half years something like one hundred spectrograms were made of the night sky, and every one of them recorded the chief auroral line, so that during this period of time auroral illumination of the sky was found to be present on every night that an exposure was made for detecting it. Incidentally, Prof. Slipher made a determination of the wave-length of the green auroral line, which he finds to be longer than the generally accepted value, λ 5571. Prof. Frost, in an editorial note, corroborates the fact from inspection of one of the spectrograms that the green line falls at a point of greater wave-length than the solar line λ 5573, and it appears that the wave-length of the auroral line is substantially λ 5578·05.

THE SPIRAL NEBULÆ.—A reprint from the Journal of the Washington Academy of Sciences for April 19 gives an abstract of a lecture delivered by Prof. H. D. Curtis, of the Lick Observatory, on certain modern theories of the spiral nebulæ. The author forms the opinion that these nebulæ are 'island universes, and not part of our galactic system, a line of argument adduced to show this being as follows:—The spiral nebulæ have large radial velocities shown by the spectroscope, their average speed being nearly five hundred miles a second, but by repeating photographs taken about thirteen years ago and comparing them with the earlier ones, Prof. Curtis finds no evidence of proper motion or motion at right angles to the line of sight which it is to be expected these objects should have, since their space velocity is high. The conclusion to be drawn is that the cross-motion does not show because the nebulæ are very remote, so remote that they must be far outside the generally accepted limits of the bun-shaped figure known as our stellar system. An argument in favour of the island universe theory, drawn from the appearance of Novæ, may be repeated. The brighter Novæ of the past have almost invariably been located in or close to our Milky Way, and therefore have evidently been part of our stellar system. In the course of a few years a dozen Novæ have been found in spiral nebulæ, all very faint, and the life-history of these has been essentially the same as that of the brighter Novæ. There is thus a presumption, though not a very rigid proof, that the phenomena of the spirals are similar to those of our galaxy, and therefore that they themselves are galaxies.